

Appl. No. 10,043,902
Amtd. Dated Oct. 28, 2005
Reply to Office action of July 28, 2005

REMARKS

Reconsideration of the application is respectfully requested.

The Office Action rejected claims 76-79, 83-84, and 93-95 under 35 U.S.C. §103(a) as allegedly being anticipated by U.S. Patent No. 4,656,463 ("Anders et al.") in view of U.S. Patent No. 4,777,652 ("Stolarczyk"). Claims 80-83 and 88-90 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Anders et al. in view of U.S. Patent No. 5,325,401 ("Halik et al."). Claims 85-87 and 91-92 were also rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Anders et al.

In this reply independent claim 76 and dependent claims 92-94 are being amended; new claims 96-105 are being added. Claims 77, 78 and 91 are being canceled. Applicants believe that Anders et al. in combination with Stolarczyk or Halik et al. does not suggest or teach the claims as amended. Anders et al. appears to describe a tagging system (such as for merchandise in a department store, for example) where tags are attached to objects or people so that by means of transceivers the objects and people can be identified or tracked. Anders refers to "tags" as "passive transceivers" Anders' transceivers appear to center around the logic and coding needed to identify and organize information gathered from the tags or passive transceivers. Anders appear to assume conventional wireless communication means that include amplifiers and demodulators, however, Anders does not suggest or teach how components can be connected as recited in the claims in the present application to make through-the-earth communication possible.

Stolarczyk appears to describe a medium frequency rf communication system where the rf signal is coupled to existing conductive channels for communication inside mines. Stolarczyk,

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like Anders failes to suggest or teach how to communicate through the earth between the surface and interior of the mine. On the contrary, Stolarczyk uses a hard-wired connection (wire pair 15 in Figs. 1 and 2) to communicate through the earth.

Halik et al. appears to describe a converter that converts L-band signals to a desired digital format. Halik et al. does not deal in anyway with through the earth signal transmission.

With respect to the specific sections of Anders and Stolarczyk that the Office Action cites, applicants address each of those sections herein. Anders et al.'s Figs. 1,2 and 5 do not teach how to communicate through the earth. Rather, they appear to show transceivers with the addition of what is needed to make tracking of "tags" possible. Fig. 17 appears to show a miner at a portal to a mineshaft. The miner is equipped with tags, or passive transmitters, on his helmet (225), shoes (221), etc. These tags appear to communicate with antennas (215) mounted on the portal frame just a few feet away from the miner. According to Anders et al, the communication is over these few feet through air. The next link in the chain of communication appears to be through the air from a repeater (216) mounted on the portal frame to an active transceiver where a safety officer receives the signal. Anders' figures do not suggest or teach communication through the earth "between the surface and underground areas of the earth."

Anders et al. at Col. 1/lines 5-17 appears to summarize a tagging and tracking system and the information that can be obtained and analyzed using such a system. It does not suggest or teach transmission through the earth. Furthermore, Anders et al. Col. 6/line 43 to Col. 7/line 5 appears to describe how the tagging/tracking system can be used to prevent theft. All communication appears to be through air. These cited sections do not teach how to communicate through the earth. Anders et al. Col. 33/lines 27-58, Fig. 2, Col. 21/lines 35-65, Fig. 6, Col.

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15/line 63 to Col. 16/line 37, Fig. 17, Col. 19/lines 50-55 appear to describe transceivers for a tagging/tracking system and uses of such a system. They do not teach or suggest transmitting through the earth.

In sum, the cited references appear to describe mine and underground communication and equipment that utilize communication through air along tunnels, between underground antennas, and through a portal to outside the mine, not through the earth. Those sections further state that for application of the tagging system to cave-ins and flooding waters, the transceivers must be designed so that they can transmit through cave-ins and flooding waters. However, the sections do not suggest or teach how to accomplish this. The cited sections and figures do not suggest or teach how transmission of voice or data through the earth can be achieved.

In the present application, claims recite elements that enable communications, regardless from how far inside the mine, to the surface through the earth, for instance, enabling communications directly to the surface through the earth as well as communications inside the mines. Applicants reiterate that transmission through air only suggested in the cited references is different from enabling transmission through the earth.

With regard to Stolarczyk figs. 1,4 and Col. 1/line 55 to Col. 2line 8, and Col. 4/line 45 to Col. 5/line 27 and Col. 2/lines 32-50, contrary to the examiner's assertion, Stolarczyk teaches away from using single sideband (SSB) because of electromagnetic interference. Stolarczyk appears to deal with frequencies 1 to 2 orders of magnitude higher where the problems of electromagnetic interference are altogether different. In addition, Stolarczyk appears to disclose the use of conductors in the mine for communication inside the mine. For communication through the earth Stolarczyk appears to disclose using hard wires. Applicants accordingly

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believe that Stolarczyk does not teach or suggest wireless communication through the earth, for instance, using "faraday coupling" as claimed in independent claims 76, 98, 99, 104, and 105 or using single side band signals as claimed in independent claims 76, 104, and 105.

For the above foregoing reasons, applicants believe that pending claims are not disclosed, suggested, or taught by Anders et al., Stolarczyk, or Halik et al. This communication is believed to be fully responsive to the Office Action and every effort has been made to place the application in condition for allowance. If a telephone interview would be of assistance in advancing prosecution of the subject application, the Examiner is requested to telephone the undersigned attorney at the number provided below.

The Director is hereby authorized to charge any fees due associated with this reply to Deposit Account No. 02-0393.

Respectfully submitted,



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